COBHAM

# SAILOR 6300 MF/HF DSC 150W/150W FCC/250W/500W

## User manual

# SAILOR 6300 MF/HF DSC 150W/150W FCC/250W/500W

User manual

**Document number:** 98-131070-THR-C

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## Warranties

Any attempt to install or execute software not supplied by Thrane & Thrane on this device will result in the warranty being void. Any attempt to modify the software on this device in a way not specified by Thrane & Thrane will result in the warranty being void.

# Safety summary

The following general safety precautions must be observed during all phases of operation, service and repair of this equipment. Failure to comply with these precautions or with specific warnings elsewhere in this manual violates safety standards of design, manufacture and intended use of the equipment. Thrane & Thrane assumes no liability for the customer's failure to comply with these requirements.

**GROUND THE EQUIPMENT**
To minimise shock hazard, the equipment chassis and cabinet must be connected to an electrical ground and the cable instructions must be followed.

**DO NOT OPERATE IN AN EXPLOSIVE ATMOSPHERE**
Do not operate the equipment in the presence of flammable gases or fumes. Operation of any electrical equipment in such an environment constitutes a definite safety hazard.

**KEEP AWAY FROM LIVE CIRCUITS**
Operating personnel must not remove equipment covers. Component replacement and internal adjustment must be made by qualified maintenance personnel. Do not service the unit with the power cable connected. Always disconnect and discharge circuits before touching them.

## Service

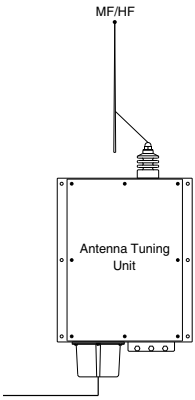
General service must be done by skilled service personnel.

**Caution!** Electric shock hazard. Do not open the equipment. Only skilled service personnel may service and repair the equipment.

## RF exposure hazards and instructions

Your Thrane & Thrane radio generates electromagnetic RF (radio frequency) energy when transmitting. To ensure that you and those around you are not exposed to excessive amounts of energy and thus to avoid health hazards from excessive exposure to RF energy, all persons must obey the following:

**Caution!** Never touch the Antenna Tuning Unit or feeder wire when the MF/HF radio is transmitting. High voltage which can cause death or serious injury is present at the locations shown in the illustration below.




## Warranty limitation

The radio is not a user maintainable unit, and under no circumstances should the unit be opened except by authorized personnel. Unauthorized opening of the unit will invalidate the warranty.

## Emergency calls

**Lift Cover**

**Press RED Button**

until beep sounds continuously
(more than 3 seconds)

Use the **HANDSET** for voice calling

**MAYDAY-MAYDAY-MAYDAY**
This is
**NAME-NAME-NAME**

**CALLSIGN**
or other IDENTIFICATION

**MMSI**
(If the initial alert is sent by DSC)

**OWN ID**

SHIP's NAME: _ _ _ _ _ _ _ _ _ _

CALLSIGN: _ _ _ _ _ _ _ _ _ _ _ _

MMSI: _ _ _ _ _ _ _ _ _ _ _ _ _

**MAYDAY**
**NAME** of the **VESSEL** in distress
**CALLSIGN** or other **IDENTIFICATION**
**MMSI**
(If the initial alert is sent by DSC)
**POSITION**
given as **latitude** and **longitude**
or
If latitude and longitude are not known
or if time is insufficient,
in relation to a known geographical location
**NATURE** of distress
Kind of **ASSISTANCE** required
Any other useful **INFORMATION**

**DISTRESS and COMMUNICATION FREQUENCIES**

| | DSC | Radiotelephony | NBDP |
|---|---|---|---|
| VHF | Channel 70 | Channel 16 | - - - - - |
| MF | 2187.5 kHz | 2182.0 kHz | 2174.5 kHz |
| HF4 | 4207.5 kHz | 4125.0 kHz | 4177.5 kHz |
| HF6 | 6312.0 kHz | 6215.0 kHz | 6268.0 kHz |
| HF8 | 8414.5 kHz | 8291.0 kHz | 8376.5 kHz |
| HF12 | 12577.0 kHz | 12290.0 kHz | 12520.0 kHz |
| HF16 | 16804.5 kHz | 16420.0 kHz | 16695.0 kHz |

Remember to use the correct HF-procedures
Don't forget your EPIRB is the secondary means of alerting

99-132140

# Preface

## Radio for occupational use

The SAILOR 6300 MF/HF DSC fulfils the requirements of the EC directive 1999/5/EC, Radio and Telecommunications Terminal Equipment and is intended for use in maritime environment.

SAILOR 6300 MF/HF DSC is designed for *occupational use only* and must be operated by licensed personnel only.

SAILOR 6300 MF/HF DSC is not intended for use in an uncontrolled environment by general public.

## Manual overview

This manual has the following chapters:

- *Introduction* contains a description of the MF/HF radio and its components.
- *Operation* explains how to start up the radio, make and receive voice, Distress and DSC calls, including how to handle multiple sessions, Watch and Replay.
- *Service & maintenance* contains support information including a weekly check, diagnostics and a troubleshooting guide.

# Training information (for FCC approved equipment)

The SAILOR 6300 MF/HF DSC is designed for *occupational use only* and is also classified as such. It must be operated by licensed personnel only. It must only be used in the course of employment by individuals aware of both the hazards as well as the way to minimize those hazards

The radio is thus NOT intended for use in an uncontrolled environment by general public. The SAILOR 6300 MF/HF DSC has been tested and complies with the FCC RF exposure limits for *Occupational Use Only*. The radio also complies with the following guidelines and standards regarding RF energy and electromagnetic energy levels including the recommended levels for human exposure:

- FCC OET Bulletin 65 Supplement C, evaluating compliance with FCC guidelines for human exposure to radio frequency electromagnetic fields.
- American National Standards Institute (C95.1) IEEE standard for safety levels with respect to human exposure to radio frequency electromagnetic fields, 3 kHz to 300 GHz
- American National Standards Institute (C95.3) IEEE recommended practice for the measurement of potentially hazardous electromagnetic fields - RF and microwaves.

Below the RF exposure hazards and instructions in safe operation of the radio within the FCC RF exposure limits established for it are described.

## Warning

Your Thrane & Thrane radio set generates electromagnetic RF (radio frequency) energy when it is transmitting. To ensure that you and those around you are not exposed to excessive amounts of that energy (beyond FCC allowable limits for occupational use) and thus to avoid health hazards from excessive exposure to RF energy, FCC OET bulletin 65 establishes an Maximum Permissible

Exposure (MPE) radius of 6 ft. (1.8m) for the maximum power of your radio (150 W selected) with a whip antenna having a maximum gain of 3.0 dBi. This means all persons must be at least 6 ft. (1.8m) away from the antenna when the radio is transmitting.

## Installation

1. A whip antenna with a maximum power gain of 3 dBi must be mounted at least 12.6 ft. (3.9m) above the highest deck where people may be staying during radio transmissions. The distance is to be measured vertically from the lowest point of the antenna. This provides the minimum separation distance which is in compliance with RF exposure requirements and is based on the MPE radius of 6 ft. (1,8m) plus the 6.6 ft. (2.0 m) height of an adult.
2. On vessels that cannot fulfil requirements in item 1, the antenna must be mounted so that its lowest point is at least 6 ft. (1.8m) vertically above the heads of people on deck and all persons must be outside the 6 ft. (1.8 m) MPE radius during radio transmission.
    - Always mount the antenna at least 6 ft (1.8 m) from possible human access.
    - Never touch the antenna when transmitting
    - Use only authorized T&T accessories.
3. If the antenna has to be placed in public areas or near people with no awareness of the radio transmission, the antenna must be placed at a distance not less than 12 ft. (3.6 m) from possible human access.

Failure to observe any of these warnings may cause you or other people to exceed FCC RF exposure limits or create other dangerous conditions.

## Related documents

| Title and description | Document number |
|---|---|
| **SAILOR 630x MF/HF Control Unit,** Installation Guide | 98-132396 |
| **SAILOR 6300 MF/HF Transceiver Unit & Antenna Tuning Unit 150/250/500 W**, Installation Guide | 98-133081 |
| **SAILOR 6000 MF/HF 150/250/500 W System**, Installation Manual | 98-130890 |
| **SAILOR 6300 MF/HF Radiotelex**, User Manual | 98-132519 |
| **SAILOR 6101 and SAILOR 6103 Multi Alarm Panel**, Installation and User Manual | 98-130981 |
| **Emergency call sheet** | 98-132369 |

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# *Introduction*

## SAILOR 6300 MF/HF DSC

The SAILOR 6300 MF/HF DSC is a modular and flexible MF/HF radio that can be customized to your specific needs for MF/HF communication on workboats, high seas fishing vessels and merchant vessels of all kinds. It offers simplex and semi-duplex SSB radiotelephony in the maritime mobile frequency bands from 150 kHz to 30 MHz. Services include voice transmissions, watch function, DSC operations (Distress calls, position info, Distress relay and more) and AM Broadcast. Optional are the 6-channel DSC watch keeping receiver, AM Broadcast and telex.

The large display shows Rx and Tx frequencies and status, MMSI number, position information, system and channel properties, including indicators for transmission power and received signal strength. It is easy to read from almost all angles and the display light can be adapted to dark environments. Then red text is shown on a black background providing a good visibility even at night while protecting your night vision.

DSC operations are made using the four soft keys next to the display. The MF/HF radio can replay the last 240 s of received voice messages. This is a useful feature to minimize misunderstandings and to record messages when the radio is unattended. The SAILOR 6300 MF/HF DSC has an Ethernet interface to connect to other equipment for control, monitoring and printing.

The SAILOR 6300 MF/HF DSC is available as a basic MF radio that can be upgraded with an HF DSC option and a telex option. Telexes are sent using the SAILOR 6006 Message Terminal.

## Features

- Rugged and reliable design.
- Full power range on all ITU channels: 1.6 – 30 MHz for 150 W, 250 W and 500 W systems (Reduced power in the frequency range 1.6 – 4.0 MHz for 500 W).
- Powerful transceiver (150, 250 or 500 W).
- Outdoor automatic antenna tuning unit.
- Radiotelex using the SAILOR 6006 Message Terminal
- Optionally 6 DSC Distress frequencies in one unit.
- Intelligent scanning for Voice, DSC and radiotelex (optional).
- Ethernet with ThraneLINK.
- Compliant with GMDSS in sea areas A2, A3 and A4 (Wheelmark).
- Fulfills DSC specification ITU493-13.

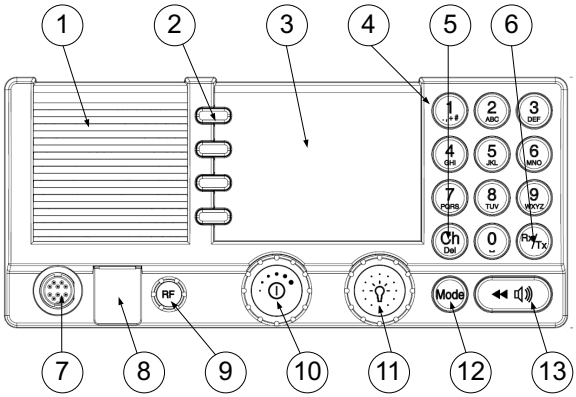
## System overview

The MF/HF radio consists of a Control Unit with a handset, a Transceiver Unit and an automatic Antenna Tuning Unit. The MF/HF radio is available in the following power classes:

| System | Control Unit | Transceiver Unit | Antenna Tuning Unit |
|---|---|---|---|
| SAILOR 6310 | SAILOR 6301 Control Unit DSC Class A[a] | SAILOR 6361 MF/HF 150 W | SAILOR 6381 ATU |
| SAILOR 6000 | | SAILOR 6362 MF/HF 150 W | |
| SAILOR 6320 | | SAILOR 6363 MF/HF 250 W | |
| SAILOR 6350 | | SAILOR 6364 MF/HF 500 W | SAILOR 6383 ATU |

a. An additional SAILOR 6301 Control Unitcan be added.

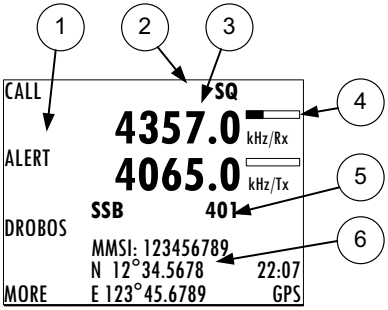
## *Controls on the front*




1. Loudspeaker.
2. Four soft keys with function title in the display.
3. Large TFT color display.
4. Alphanumerical keys to enter Rx or Tx frequency or text strings.
5. **CH** button for channel selection.
6. **Rx/Tx** Key to enter Tx or RX frequency.
7. Connector for handset or handmicrophone.
8. **Distress** button for sending a Distress alert.
9. **RF** gain control (IF).
10. Volume knob with key-press function for power on/off.
11. Selector and dim knob with key-press function for radio operation and setup.
12. **Mode** key to select the work mode: SSB, AM Broadcast, DSC, Telex (optional).
13. Replay button to play back up to 240 s voice messages.

## Display overview

The picture shows the display after start-up. The display holds various fields of information, depending on the currently selected function.




1. Functions you can select with the soft keys. If there are more than 4 functions in the list press the soft key **MORE** to display further functions.
2. **System property icons** and engagement status.
3. Current receive and transmit frequency.
4. Channel properties with status and indicators for received signal strength (Rx) and transmission power (Tx).
5. **Service line** containing mode of operation and channel number.
6. **DSC window** with MMSI number, position information and source.

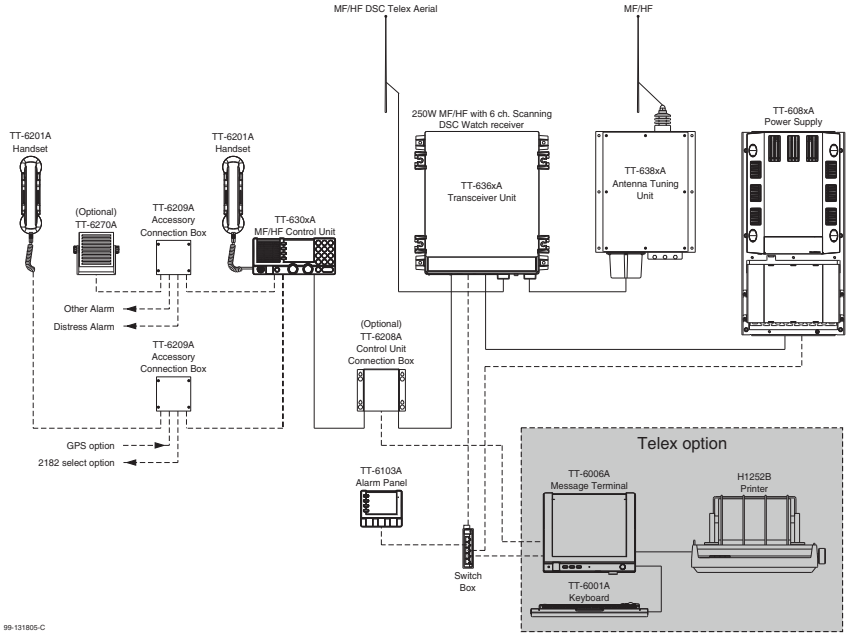
For a detailed description of the information shown for each of the functions available see the chapter *Operation* on page 7.

# Accessories available

| Accessory | Description |
|---|---|
| SAILOR 6201 Handset with cradle | One SAILOR 6201 Handset with cradle is included in the delivery of the SAILOR 6300 MF/HF DSC. If needed, you can connect another SAILOR 6201 Handset with cradle. |
| SAILOR 6203 Handset with cradle | SAILOR 6203 Handset with cradle, waterproof to IPx6. |
| SAILOR 6202 Hand Microphone | You can use the SAILOR 6202 Hand Microphone (waterproof to IPx6 and IPx8) instead of the handset. |
| SAILOR 6208 Control Unit Connection Box | The SAILOR 6208 Control Unit Connection Box is used for easy installation of an additional SAILOR 6301 Control Unit. |
| SAILOR 6209 Accessory Connection Box | The SAILOR 6209 Accessory Connection Box including Connection Cable 406209-941 is used for installation of external equipment: <br>• Alarm panels and GPS input<br>• Additional Handsets |
| SAILOR 6103 Multi Alarm Panel | With the SAILOR 6103 Multi Alarm Panel you can activate GMDSS Distress Alarms. The Multi Alarm Panel can be connected to the SAILOR 6300 MF/HF DSC via the Ethernet interface (LAN connector, ThraneLINK). |
| SAILOR 6081 Power Supply Unit and Charger | The SAILOR 6081 Power Supply Unit and Charger provides DC power and charges automatically a connected battery. |

| Accessory | Description |
|---|---|
| SAILOR 6197 Ethernet Switch | The SAILOR 6197 Ethernet Switch is used in installations with SAILOR 6103 GMDSS Alarm Panels and in installations with ThraneLINK. The Ethernet switch has 5 ports. |
| SAILOR 6006 Message Terminal | Necessary for telex option |
| SAILOR H1252B Printer | Necessary for telex option |

## System configuration - example



# *Operation*



## Overview

In this chapter you find detailed instructions and guidelines for:

- *General use and navigation*
- *Basic MF/HF radio communication*
- *Watch function*
- *DSC calls*
- *Handling multiple calls – DSC and voice*
- *Phone book*
- *Replay function*
- *Setup*

## General use and navigation

When the MF/HF radio is powered on for the first time, typically during installation, the vessel's MMSI number is entered. Hereafter the MMSI number is briefly displayed after power up. The MMSI is a unique, 9-digit identifier assigned to your ship.

**Caution!** Without a programmed MMSI number the Distress button will not work!

The message **NO DSC (NO MMSI)** is shown in the DSC window if the MMSI has not been programmed during installation.

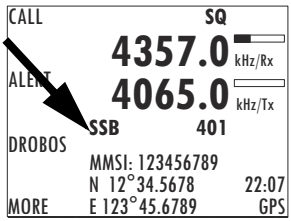
## Power on, speaker volume and antenna tuning

The MF/HF radio has a dual-function on/off knob for power on/off and volume control.

| Action | Procedure |
|---|---|
| Power on | Press the on/off knob. |
| Power off | Press and hold the on/off knob and follow the instructions in the display. |
| Speaker volume | Turn the volume knob (clockwise = louder, counterclockwise = softer, until muted). When muted, is shown in the display. |
| Volume of the handset earpiece | To adjust the volume of the handset earpiece see *Controller setup* on page 46. |
| Tuning the antenna unit | **The radio tunes first time you press the PTT button on a new frequency.** As long as the tuning symbol is in the display, the radio is not transmitting. Wait until the tuning symbol has disappeared before talking. Tuning may take from 0.1 s to 8 s.<br>Tuning is automatically done<br>• after selection of a new frequency,<br>• before any DSC transmission or<br>• if the timer-defined transmission pause is exceeded. |

## SSB, AM BROADCAST, DSC or TELEX mode

Press the **Mode** button to select a primary work and emission mode of the MF/HF radio.



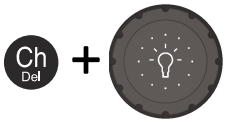

- **SSB**: In this mode the MF/HF radio listens for voice on a single RX frequency and transmits on the corresponding TX frequency.
- **AM**: AM broadcast is a listen-only mode for pleasure purposes.
- **DSC**: The MF/HF radio monitors a single DSC channel to be able to receive DSC calls.
- **TLX-SHIP or TLX-COAST**: The MF/HF radio monitors a single TELEX channel for telex communication using a SAILOR 6006 Message Terminal.

Furthermore the radio may be instructed to go into a specific mode under DSC subsequent communication or if a frequency is entered which only relates to a specific mode.

## Radio settings and ITU channel selection

To select an **ITU channel** press the channel button and

- turn the **selector knob** or
- press the numbers on the keypad.




To browse and select or enter **settings** use the **selector knob**.

## Entering Rx and Tx frequencies

To enter RX and TX frequencies use the RX/TX button and the keypad.

- First press on RX/TX button: Enter Rx frequency.
- Second press on RX/TX button: Enter Tx frequency.

- Press and hold RX/TX button to enter simplex frequencies. Then the same frequency is copied to both RX and TX fields on the radio.

For fine tuning of frequencies (voice clarify) press the selector knob.

| Fine tuning step sizes | | |
|---|---|---|
| **Selector knob** | **SSB mode** | **AM mode** |
| Press 1 x | 10 Hz | 100 Hz |
| Press 2 x | 100 Hz | 1000 Hz |
| Press 3 x | leave fine-tuning | leave fine-tuning |

## Adjusting RF gain

Use RF gain to control audibility of the incoming signal. Turn the RF gain control knob fully:

- clockwise: maximum RF gain – maximum sensitivity
- anti-clockwise: minimum RF gain – minimum sensitivity

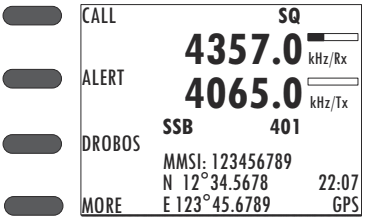
The larger the signal strength bar, the larger the signal must be in order to be audible. After entry of a new receive frequency the RF gain is set to maximum.

The function is enabled in SSB telephony and disabled in all other modes.

## Soft-key functions

A number of functions of the SAILOR 6300 MF/HF DSC are accessed using the four soft keys to the left of the display. The current function of a soft key is shown in the display next to the soft key.

Use the soft key **MORE** to display further soft key functions.



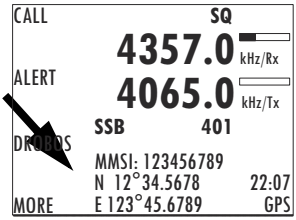

The following soft-key functions are available from top-level standby:

| Soft key | Function |
|---|---|
| CALL | Make DSC non-Distress calls. |
| ALERT | Make a Distress call, categories can be assigned. |
| DROBOS | Distress relay call on behalf of someone else. |
| HI/LO[a] | Switch between high and low power. |
| WATCH[a] | Dual watch, current frequencies plus 1 DSC frequency (2177 kHz). |
| SCAN[a] | Scan in SSB voice or DSC + SSB voice mode. For scanned frequencies see *DSC Watch* in *Channel setup* on page 41. |
| SQLCH[a] | Squelch enable or disable[b]. |
| PHBOOK | Phone book. |
| SETUP | Setup pages. For more details see *Setup* on page 40. |

a. Only in SSB mode.
b. Not available in WATCH mode.

## Position and MMSI Information

The position and MMSI information for the SAILOR 6300 MF/HF DSC radio is shown in the lower part of the radio's display. The current (latest) position of the connected GPS, the UTC and position type, GPS Status and MMSI are displayed.




### *Entering the vessel's position manually*

If you need to enter the vessel's position and UTC of position manually, do as follows:

1. Press the soft key **SETUP**. If it is not in the display, press the soft key **MORE** until **SETUP** appears.
2. Press the arrow soft key ▶ or ◀ to advance to **DSC SETUP**.
3. Press the selector knob to select **Position & MMSI**.
4. Enter the current position and UTC time:
   - Latitude (LAT),
   - Longitude (LON)
   - UTC time (POS UTC)

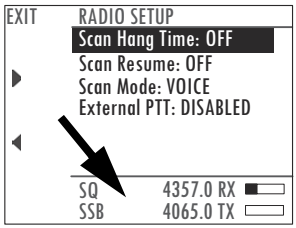
   Turn and press the selector knob to select the value you want to change. Then use the keypad or press and turn the selector knob to enter the current values for position and UTC time.
5. Having entered the UTC time, the soft key **SAVE** appears. If needed, you can clear all position data by pressing **CLEAR**. Press **SAVE** and then **EXIT** to return to normal operation. The display shows **Man** in the lower right corner.
6. After you have entered a value manually or overruled the GPS input, a soft key **UseGPS** appears in the display if the GPS is available. Press this soft key if you decide to use the data from the connected GPS.

If the GPS was present and then disappears a warning appears in the display after 10 minutes, then you can enter the position and UTC time manually as described above.

## Channel information always available in the display

For some functions and for the setup pages, the channel and radiotelephony information has moved to the bottom section of the display. You can change frequencies whenever the frequencies are displayed.

If **PTT** is pressed the radio transmits on the displayed frequency on which the radio is tuned into for communication. If a signal is received, it is received on the displayed frequency.




*(Example: Radio setup)*

## Engagement status

The radio is engaged when an active DSC-initiated communication is ongoing, or communication is active on non-DSC initiated MF/HF operation:

- A new channel is selected
- PTT is pressed
- Voice signal is received (if squelch is enabled)

The engagement state is used to prohibit incoming DSC calls from taking over control of the transmitter channel, disrupting ongoing communication.

When the radio is engaged in communication not initiated by DSC, this is indicated with the symbol in the display. Engagement will automatically time-out on inactivity, after an inactivity time specified in *DSC setup* on page 42.

To terminate the engagement immediately press the soft key **QUIT**.

## Speaker devices

The MF/HF radio can be equipped with the following speaker devices:

- Additional SAILOR 6301 Control Unit
- SAILOR 6201 Handset with cradle, microphone, ear piece and PTT (Push To Talk) button.
- SAILOR 6202 Hand Microphone with PTT button.

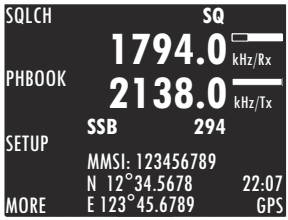
See *Controller setup* on page 46 for managing the connected speaker devices.

## Changing the display colors and dim function

Red text on black background is available for optimal night vision. To **dim the display backlight**, e.g. to give comfortable night vision, press, hold and turn the selector knob anti-clockwise. The display shows a brightness bar. At the brightness value 45 the display changes to **night view** with red text on black background.

To return to day vision press, hold and turn the selector knob clockwise until the display changes and it reaches the desired brightness.

The radio has two color themes: Black text on a white background (default) or white text on black background. To change the color theme see *System setup* on page 44.




## Squelch on/off (soft key)

Press the soft key **SQLCH** to toggle between squelch on and off. If it is not in the display, press the soft key **MORE** until **SQLCH** appears. **SQ** is shown in the display.

The Squelch control is based on voice detection. When squelch is enabled, the receiver is muted in speech pauses. Squelch is automatically activated in **WATCH** mode.

For impact of squelch on replay see *Replay function* on page 39.

# Basic MF/HF radio communication

You can make radio calls using the Handset or another speaker device.

- Ship-to-ship communication: Use simplex channels.
- Ship-to-shore communication: Use duplex channels.

Only valid frequencies and channel numbers are accepted.

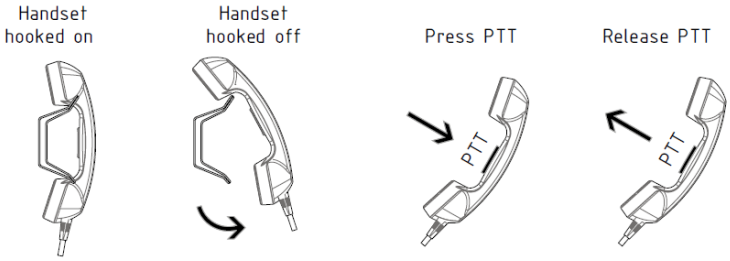


## *Quick guide to radio telephone calls*

1. Check that the MF/HF radio is in **SSB** mode. If necessary, press the button **MODE** to switch to **SSB**.
2. Enter an RX and TX frequency, for example **2182 kHz**, the international calling and Distress frequency for maritime radiotelephone communications on the marine MF bands.

   - First press on RX/TX button: Enter Rx frequency.
   - Second press on RX/TX button: Enter Tx frequency.
   - Long press on selector knob: Edit mode to fine-tune frequencies. In SSB mode (Voice clarify), in 10 Hz steps. One more press changes the step size to 100 Hz.
3. Take the handset off the hook and press the **PTT** button on the speaker device. Now the antenna is tuned and a tuning symbol is displayed.

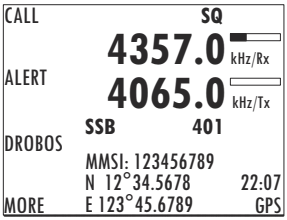


**Note** **The radio tunes first time you press the PTT button on a new frequency.** As long as the tuning symbol is in the display, the radio is not transmitting. Wait until the tuning symbol has disappeared before talking. Tuning may take from 0.1 s to 8 s. (Tune)

4. When the TX indicator lights up and the transmission power bar shows activity, the transmission is active. Always say “Over.” before releasing the PTT button.
5. To receive a radio signal, release the **PTT** button. When receiving a signal, the bar for received signal strength shows activity.

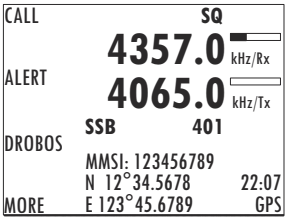
## *Receiving a radio telephone call*

When you hear your ship’s name or call sign in the loudspeaker, the symbol **RX** shows that the radio is receiving on the frequencies displayed and the bar for received signal strength shows activity. Proceed as follows:




1. Lift the Handset or take another speaker device.
2. Press the **PTT** button and wait until the tune icon has disappeared. The symbol **TX** shows that the radio is transmitting on the frequencies displayed and the transmission power bar shows activity. (Tune)
3. Repeat the name of the station calling you and say: “This is [your ship’s name]”.
4. Suggest a frequency pair by saying: “Frequencies [suggested frequencies]” and “Over.” and release the **PTT** button to allow the caller to confirm the suggested new frequencies.
5. Switch to the new frequencies using the RX/TX button and the keypad and begin your conversation. Press **PTT** only when you are talking.

### *Making a radio telephone call*




1. Enter RX and TX frequencies or select an ITU channel.
2. Lift the Handset or take a speaker device and press the **PTT** button, then wait until the tune icon has disappeared. The symbol **TX** shows that the radio is transmitting on the frequencies displayed. The transmission power bar shows activity,

**Note** If a popup window with the information **TX inhibit** is displayed when you want to make a radio call, your MF/HF radio is temporarily blocked for sending. Consult your radio responsible for information when you can start transmitting.

3. Say the name of the station you are calling three times.
4. Say: “This is [your ship’s name]” and “Over.” and release the **PTT** button to listen. The symbol **RX** shows that the radio is receiving on the working channel displayed.
5. When answered, agree upon a pair of frequencies, enter the new frequencies or ITU channel and start talking.

# Watch function

The MF/HF radio has a dual watch function. The currently selected RX and TX frequencies and the Distress frequency 2182 kHz are watched.

To start **WATCH** press the soft key **WATCH**. The display shows **SSB-DW:2177.0** (example), the tab for an active voice session and **SQ.**

To stop **WATCH** press the soft key **WATCH** or **PTT** on the speaking device.

# Scan

The radio has a scanning function for tagged voice channels. Any SSB voice channel can be tagged and added to the scanning sequence. In scan mode MULTI, the tagged SSB voice channels and the DSC channel are watched in turn (SSB voice – DSC – SSB voice 2 – DSC – etc). If a signal is received while in MULTI scanning mode, the DSC channel continues to be watched.

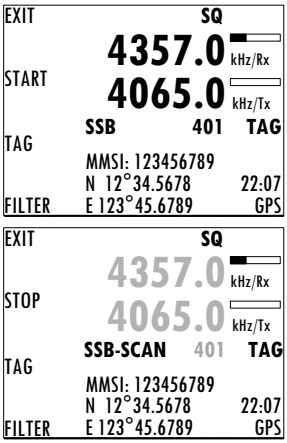
If there is a signal in one of the scanned channels, the display shows the channel in which the signal is received. If PTT is pressed while scanning, the scanning stops, the radio is tuned into the displayed channel and transmission starts immediately on the displayed working channel.

**To start scanning** press the soft key **SCAN**. The SCAN menu is shown. Press **START** to start scanning. To leave the SCAN menu, but not the scanning procedure, press **EXIT**.

**To stop scanning** press **STOP** or press **PTT** on the speaking device.

**To tag a channel for scanning** select the wanted channel. Then press the soft key **TAG**. The display shows the channel number and the word **TAG** at the right side of the display.

**To remove a channel from the scanning sequence** turn the selector knob until the tagged channel is displayed. Then press the soft key **TAG** to remove the tag.




To see all tagged channels press the soft key **FILTER** and turn the selector knob. Press the soft key **EXIT** to leave the FILTER function. For details how to set up the scanning function see *Radio setup* on page 41.

**Note** The displayed SSB channel is temporarily included in the scanning list (although no TAG icon is shown).

# DSC calls

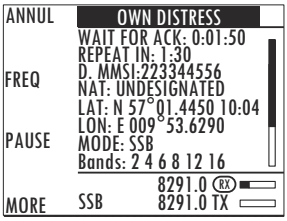
In this section of the manual you find information on:

- *Own Distress – sending, acknowledging and cancelling*
- *Sending a Distress from the SAILOR 6103 Multi Alarm Panel*
- *DROBOS – Distress relay on behalf of someone else*
- *Receiving Distress calls*
- *DSC calls*
- *Printing DSC calls*
- *Sessions in the MF/HF radio*
- *Handling multiple calls – DSC and voice*
- *Geographical area calls*



## Own Distress – sending, acknowledging and cancelling

### *To send a Distress alert*




1. Lift the cover of the red Distress button and press and hold the Distress button for longer than 3 seconds. For short step-by-step instructions how to proceed when sending a Distress message see *Emergency calls* on page vi. When the Distress signal is sent, **SSB**, and **TX** appear in the display. A two-seconds beep tone is heard and the channel that is currently sent appears in the display. The MF/HF radio displays one by one the bands in which the Distress has been transmitted. Sending multi channels distress required HF DSC option.

   If you inadvertently transmit a DSC Distress alert press the soft key **ANNUL**. For detailed instructions how to cancel all Distress alerts see *To cancel own Distress* on page 21.

2. Press the soft key **FREQ** if you want to specify a certain band out of the 6 available as the next distress frequency. Thereafter all 6 distress frequencies are transmitted.
3. Press the soft key **VIEW** (press **MORE** to advance to **VIEW**) to see details and start radio communication on the frequency 2182 kHz (automatically set) to inform about your Distress situation.

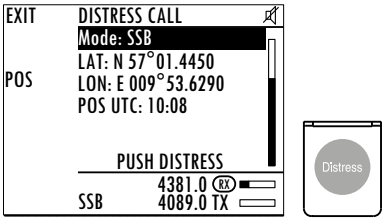
Note

**Automatic retransmission**: If no Distress acknowledgement is received within a period of 3.5 to 4.5 minutes, the Distress message will automatically be retransmitted. Transmitting order: 2 MHz, 8 MHz, 4 MHz, 6 MHz, 12 MHz, 16 MHz.

For an undesignated Distress message the subsequent communication is always voice communication.

## *ALERT – To send a Distress alert with specified parameters*

To send a Distress call with specified nature, distress frequency and sub communication mode Telex do as follows:




1. Press the soft key **ALERT**.
2. Enter the necessary information using the selector knob, see table on the following table.

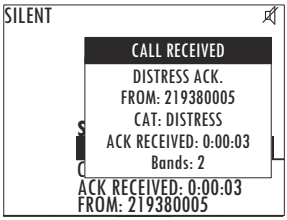
| Item | Description | |
|---|---|---|
| Distress nature | FIRE, EXPLOSION<br>FLOODING<br>COLLISION<br>GROUNDING<br>LISTING (in danger of capsizing)<br>SINKING | DISABLED (and adrift)<br>UNDESIGNATED<br>ABANDONING (ship)<br>PIRACY (armed robbery attack)<br>MAN OVERBOARD |

| Item | Description |
|---|---|
| DSC | All or single frequency, if you only want to send the Distress alert on one of the 6 Distress frequencies. |
| Mode | Radio sub communication mode: SSB or Telex FEC. |

3. Lift the cover of the red Distress button and push the **Distress button** for 3 seconds.

### *To receive acknowledgement of own Distress*

When the MF/HF radio receives an acknowledgement of Distress from another vessel or station, a 2-tone alarm sounds. The display shows a pop-up window with the MMSI number of the station who sent the Distress acknowledgement call.



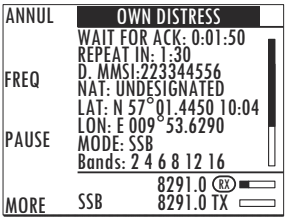

- Press **SILENT** or any other key to switch off the 2-tone alarm.
- Press the soft key **VIEW** to display further data for this call.
- Press **VIEW** again to return to the working display.

If the same own Distress acknowledgement comes in more than once, the 2-tone alarm sounds briefly and terminates automatically.

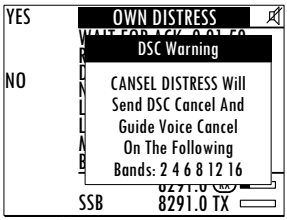
### *To cancel own Distress*

If you inadvertently transmit a DSC Distress alert and want to cancel it do as follows:

1. The display shows that a Distress message has been sent. Press the soft key **ANNUL**. A pop-up window is displayed.



2. Press the soft key **YES** to go ahead with the cancelling process, or press the soft key **NO** to return to Distress sending procedure.




3. You must send a voice cancellation message on all DSC watch channels. The display shows the message that you should say when cancelling the Distress.

   Use the selector knob to scroll through all information for the voice cancel.

4. Press the soft key **OK** to go to the next Distress frequency and repeat step 3.

   Once you have made the voice cancel for all Distress frequencies, Own Distress is cancelled.

5. To finish the Distress session and get back to normal radio use press the soft key **QUIT**.

## *Power failure while in Distress*

In case of a power failure or switch-off during the transmission of a Distress the SAILOR 6300 MF/HF DSC gives an audible warning after power-up and automatically resumes sending Distress 10 seconds after power up. Within the 10 seconds you have the following options:

- Press **QUIT** to terminate the active Distress procedure (acknowledged or unacknowledged).
- Press **RESUME** (or do nothing) to resume the sending Distress procedure.

## Sending a Distress from the SAILOR 6103 Multi Alarm Panel

The optional SAILOR 6103 Multi Alarm Panel will, when connected to the MF/HF radio, indicate in the SAILOR 6103 display that a Distress can be sent over MF/HF.

**Note** Only undesignated Distress messages can be initiated from the Alarm Panel.

To send a Distress alert from the SAILOR 6103 Multi Alarm Panel, do as follows:

1. Lift the cover of the Distress button marked **MF/HF Distress**.
2. Press and hold the button until the light is steady and the buzzer stops (more than 3 seconds).

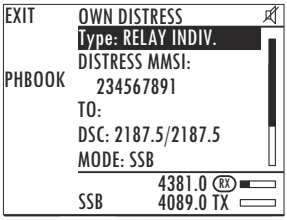
   The MF/HF radio is now in Distress mode. Continue the Distress traffic and procedures from the MF/HF radio front panel.
3. Press the **MUTE** button on the Alarm panel to mute the audible alarm for current distress. All audible alarms are muted.

For further information see the Alarm Panel Installation and user manual.

## DROBOS – Distress relay on behalf of someone else

To send a Distress message on behalf of someone else, do as follows:

1. From top-level standby press the soft key **DROBOS**.
2. Select one line at a time by pressing and turning the selector knob.
3. Enter the necessary information using the selector knob or the keypad:



| DROBOS items | Description |
|---|---|
| TYPE: | Select RELAY INDIV or RELAY AREA. |
| Distress MMSI: | Enter the MMSI number of the vessel in Distress, if known, or else “unknown” |
| TO: | Enter the MMSI number of the coast station you are relaying the Distress alert to. |
| DSC: | Enter the DSC frequency pair, 6 are available, default: 2182 kHz. |
| Mode: | Select the radio sub communication mode: SSB or Telex FEC. |
| NAT: | Select the nature of Distress, see *ALERT – To send a Distress alert with specified parameters* on page 20.<br>Enter also the position data, LAT, LON and POS UTC. |
| LAT:<br>LON:<br>POS UTC: | Enter the position data. |

4. Press the soft key **SEND**.

## Receiving Distress calls

When the radio receives a Distress call, the 2-tone alarm sounds. The display shows the bands in which the Distress call is received and the category of the Distress call. The types of Distress calls are Distress, Distress ACK, Distress RELAY and DISTR. RELAY ACK.

1. Press the soft key **SILENT** to switch off the 2-tone alarm.
2. Press **VIEW** to display further information for this call.
3. Press **HOLD** to put the call on hold and stay in the communication loop to receive follow up information, updates etc.
4. Monitor radio communication on the frequency 2182 kHz (automatically set) as a coast station may require your assistance.
5. The radio receives the first Distress acknowledgement call and the 2-tone alarm sounds again. To switch off the 2-tone alarm press the soft key **SILENT**.
6. If you decide to acknowledge the Distress call press the soft key **ACK** (press **MORE** until **ACK** is shown in the display).

You can also relay the Distress call. Enter a new MMSI to which you want to send the Distress call, then press the soft key **SEND**.

### *Distress call with errors*

Distress calls containing errors can be received. Press the soft key **VIEW** to view the message; errors are shown as underscores (_).

### *Distress call log*

As long as you are part of a Distress session, i.e. you have not pressed **QUIT**, you receive Distress messages and can track all Distress messages for the current Distress event.

1. Press the soft key **LOG**. If it is not in the display, press the soft key **MORE** until **LOG** appears.
2. Press the soft key **NEXT** and **PREV** to browse the received Distress messages.
3. Press the soft key **EXIT** to leave the log.

## DSC calls

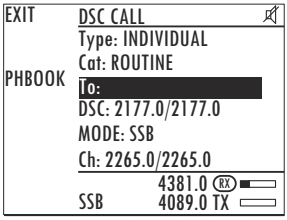
With a DSC call you can establish a radio communication with one or several specific radios on a suggested pair of frequencies or channel.

**MF/HF Radio A**

1. Make a **DSC call** from Radio A to Radio B.
2. **DSC acknowledge** from Radio B to Radio A.
3. Radio A + B go on the **agreed MF/HF channel.**
4. Press **PTT** and start talking.

**MF/HF Radio B**

To make a DSC call, do as follows:




1. Press the soft key **CALL**. The default call is an individual routine call.
2. Turn and press the selector knob to select a call type. For each DSC call type a number of parameters can be set.

| DSC call type | Cat | To: | DSC: | Mode | CMD | Ch | DEST CENTRE + RADIUS |
|---|---|---|---|---|---|---|---|
| INDIVID. | X | X | X | X | – | X | – |
| SATETY TEST | – | X | X | – | – | – | – |

| DSC call type | Cat | To: | DSC: | Mode | CMD | Ch | DEST CENTRE + RADIUS |
|---|---|---|---|---|---|---|---|
| Position | – | X | X | – | – | – | – |
| Group | – | X | X | X | – | X | – |
| Area | X | – | X | X | X | – | X |



3.

4. Make the entries for the desired call type:

| Item | Description |
|---|---|
| TO: | Enter the 9-digit MMSI number of the vessel you want to contact or use the phone book (**PHBOOK**) to select a contact. |
| DSC: | Enter a frequency for the DSC call. |
| Mode: | Select the sub communication mode SSB or TELEX FEC. |
| Cat: | Select a DSC call category, depending on the call type (Routine **R**, Safety **S** or Urgency **U**) |
| CMD: | Select Medical transport or Neutral crafts (if enabled in *DSC setup* on page 42). Only for the category: Urgency calls. |
| Ch: | Enter the suggested frequencies for voice communication. |
| DEST CENTRE + RADIUS | For Area calls enter the destination centre with latitude and longitude data, plus the destination radius in nm. For information about how areas must be entered see *Geographical area calls* on page 35. |

5. Press the soft key **SEND** to make the call.

## Printing DSC calls

If a printer is connected to the SAILOR 6300 MF/HF DSC via LAN you can print DSC messages automatically. You can also print entire DSC call logs.

To set up a default printer, do as follows:

1. Go to **SETUP** and use the arrow keys to advance to **System Setup**
2. Select **Printer Config:**.
3. Select one printer as the default printer and press the selector knob to enter the choice.

To print DSC messages, do as follows:

1. Go to **SETUP** and use the arrow keys to advance to **DSC Setup.**
2. Use the selector wheel to scroll to **Print DSC**.
3. Set **Print DSC:** to **ON.**

To print DSC call logs, do as follows:

1. Go to **SETUP** and use the arrow keys to advance to **DSC call logs.**
2. Select the call log you want to print.
3. Press the soft key **PRINT**.

# Sessions in the MF/HF radio

## *What is a session?*

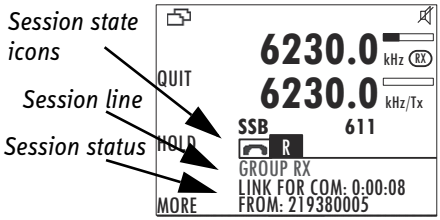
A DSC session is defined as a collection of DSC calls (transmitted and/or received) that are related to the same event (e.g. a Distress event) or established call (e.g. an individual call request followed by an acknowledgement).

A session can be either **active** or **on hold**. The active session has control over the radio transmitter. A session can have a purpose. For example if the purpose is to establish a communication on a working channel.

The non-DSC communication (voice) is considered as a session that can be active (engaged) or on hold (dis-engaged). See also *Engagement status* on page 13.

## *Display for a session*

In the lower part of the display the type of session, the current state, MMSI number of the other party and lapsed time since the reception of a call request or an acknowledgment is shown.




The session state icons, in the example and R, show the state of the session:

- **ACTIVE** – the session icon is inverted, the transmitter tuned into the communication channel (in the example R, a DSC Routine call).
- **HOLD** – normal view, parked session (in the example , MF/HF voice communication.
- **FLASHING** – Call has updates that need handling or viewing.

For more information on the session state icons see *Session state icons* on page 30 below.

**Note** If two identical polling or test calls are sent from the same MMSI and the operator wants to resend a confirmation to the second call received, it is necessary to put the session on hold and then activate it again.

## *Session state icons*

Session icons in the session view inform you of the severity or category of the DSC call or Voice communication:

- **D** – Distress category
- **U** – Urgency
- **S** – Safety
- **R** – Routine
- – Voice (voice call, non-DSC)
- **T** – Telex

## *Session line*

The following table gives an overview of the information in the session line:

| Session line | Explanation |
|---|---|
| OWN Distress | The ship is in own Distress. See also *To send a Distress alert* on page 19. |
| Distress RX | You watch or participate in a Distress communication for another station in Distress |
| RELAY calls (numerous) | You watch or participate in a Distress communication for another station in Distress |
| ALL SHIPS TX/RX | You have sent / received an all ships call |
| GROUP TX/RX | You have sent / received a group call |

| Session line | Explanation |
|---|---|
| INDIVIDUAL TX/RX | You have either sent a call request to a station to establish contact, or another station has made a call to you to establish contact. The call needs a reply. |
| TEST TX/RX | You either have sent a SAFETY TEST call or have received a SAFETY TEST call from another station that needs to be replied. |
| POSITION TX/RX | A position request was either sent or received. |



### *Session status*

The following table gives an overview of the information in the session status:

| Session status | Explanation |
|---|---|
| WAIT FOR ACKNOWLEDGE | You made an individual call to a station and are awaiting a reply to establish connection. |
| OCCUPIED | The DSC transmission mechanism waits until the selected DSC channel is free. |
| TRANSMITTING | Transmission of a DSC message is ongoing. |
| IN COMMUNICATION WITH | The communication has been established |

### *Soft keys for DSC sessions*

Call/session types vary in control options, and options may also change if a session changes its state. The following table gives an overview of the DSC soft key commands available:

| Soft key – DSC session | Radio function |
|---|---|
| QUIT | Terminates the DSC session |

| Soft key – DSC session | Radio function |
|---|---|
| HOLD | Puts the DSC session on hold if it is active (return to other non-DSC functions) |
| ACTIVE | Activates the DSC session |
| VIEW | Shows details about the DSC call |
| RESEND | Transmits an identical call if available |
| NEWCH | Replies with a new channel if an individual call is received with a communication channel specified which is not available in the radio, or the operator decides to change the channel. |
| UNABLE | Constructs a reply to the caller if an individual call is received which is not compatible with the radio modes. |
| SILENT | Silences alarms. Any key silences the alarm but this soft key function will do only this. |
| ACK | Acknowledges a received call request with the suggested parameters. |
| POS (Own Distress) | A shortcut to own position data information. |
| PAUSE (Own Distress) | Pauses the automatic repetition of Distress transmissions |
| RESUME (Own Distress) | Resumes automatic repetition of Distress transmissions (if paused) |
| DIST ACK | Distress acknowledgement. |
| RELAY | Relay a received Distress call. |
| ANNUL (Cancel Own Distress) | Cancels an inadvertently transmitted Distress |
| CONFIRM (Cancel Own Distress) | Confirms action and proceed sequence, used in cancel Distress procedure |

| Soft key – DSC session | Radio function |
|---|---|
| INFO (in Cancel Own Distress) | Turns page of text message. |
| HIST (Received Distress) | A filtered version of the log displaying received calls relevant to the current Distress event. |

You find detailed information how to handle multiple calls in *Handling multiple calls – DSC and voice* on page 35.



## *Information for DSC sessions (soft key: VIEW)*

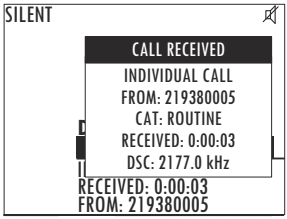
A DSC session is updated based on DSC calls received or transmitted. Press the soft key **VIEW** to show the details for the current session. For Distress events a sequence of calls may contribute to the complete view and status of the session. Detailed fields for Distress are:

| Details – Distress | Explanation |
|---|---|
| DISTR-MMSI | The vessel in Distress |
| NAT | Nature of Distress |
| LAT | Latitude position of station in Distress |
| LON | Longitude position of station in Distress |
| POS UTC | Time of position |
| MODE | Communication mode (SSB, Telex) |
| 2 4 6 8 12 16 | Frequency bands for Distress alerts |

For other session types the soft key **VIEW** typically shows the details from a single call. Detail fields for other calls than Distress are:

| Details –other calls | Explanation |
|---|---|
| CALL Type | (on received call) – The call type may be shown on call reception |
| CAT | Category of the call: Urgency, Safety or Routine |
| FROM | The initiator of the call |
| TO | The intended receiver of the call (unless All Ships) |
| MODE | Communication mode (Simplex/Semi-duplex Telephony supported) |
| CHANNEL | Subsequent communication channel |
| LAT | Latitude position returned upon a position request |
| LON | Longitude position of station in Distress |
| POS UTC | Time of position |

## *Receiving DSC calls*




If the radio is in stand-by mode, i.e. not engaged in another session, and a DSC call is received the call details are shown on the display.

Press the soft key **SILENT** to continue.

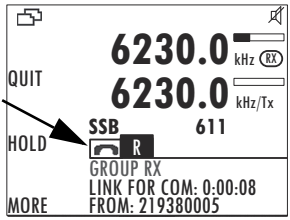
You can acknowledge the call, put it on hold or display more information (soft key: **VIEW**).
If you put the call on hold, the session icon for this call will flash until you have acknowledged the call. See also *Display for a session* on page 29.

## Handling multiple calls – DSC and voice

The SAILOR 6300 MF/HF DSC can control multiple DSC sessions simultaneously with a voice communication session. All sessions can keep track of their session state and the communication channel used. They are handled in their respective sessions, in the order as they are started up.

**Note** Note that there is one active call or session at a time. Use the soft key to switch between the ongoing calls/sessions.

A call – or session – can be on hold (**HOLD**) or active (**ACTIVE**). If there are several calls ongoing, they are shown as tabs in the display with their state (active, on hold, requiring attention). The DSC sessions on hold can receive calls that are pertinent to the session, even when the session is not displayed.

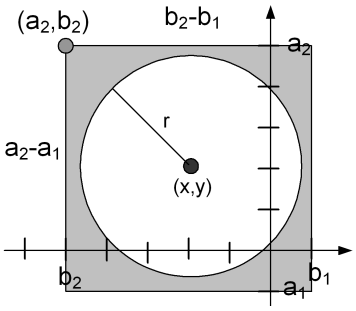



To close a session, the session must be active, then press the soft key **QUIT**.

In case there are simultaneous alarms, they are sorted according to their priorities, the most important ones are shown first. In some cases alarm or pop-up messages terminate automatically, then the display messages and audible alarms also disappear automatically.

## Geographical area calls

When making a DSC area call, you must enter the position of the ship (x,y) and the radius of interest r. This information is transformed to a square with a corner point (a,b) and the length of its sides, $\Delta a$ and $\Delta b$. Then the DSC message is transmitted. The illustration on this page shows the relation between the user input – the white circle – and the information transmitted –the grey



square. The center point is the position of the ship measured in degrees and minutes, whereas the radius of interest is in nautical miles.

The corner point of the square ($a_2$,$b_2$) and the length of its sides is given in degrees. Note that these values are rounded to degrees, and due to the requirement that the square shall include the entire circle; this will result in a slightly larger area than defined by the user input.

Attention when close to the poles: If the latitude of the corner point 'a' is transformed to a value greater that 90° then it is set to 90° and the length $\Delta b$ is reduced correspondingly. If the length $\Delta a$ is greater than 90° then $\Delta a$ is set to 90°.

# Phone book

Use the phone book when making a DSC call. You can enter up to 50 contacts. The phone book is always sorted alphabetically by contact names. To sort phone book contacts use the soft key **FILTER**. The contacts can be sorted in ALL, COAST, SHIP or GROUP.

## Using the phone book to make a DSC call

To call a contact using the phone book do as follows:

1. Press the soft key **CALL**. If it is not in the display, press the soft key **MORE** until **CALL** appears. The DSC call composer is shown in the display.
2. Press the soft key **PHBOOK**.
3. Turn the selector knob to scroll to the phone book entry that you want to call and press the selector knob to select the contact.
4. Press the soft key **SEND** to make the call.

## Adding a contact to the phone book

To add a contact to the phone book do as follows:

1. Press the soft key **PHBOOK**. If it is not in the display, press the soft key **MORE** until **PHBOOK** appears in the display.
2. Press the soft key **ADD** and fill in the details for the new contact.

| Contact | Description |
|---|---|
| NAME | Enter the name by turning the selector knob to the desired letter, press the selector knob to accept the letter and advance to the next letter. To finish press the soft key **OK**. |
| TYPE | Press and turn the selector knob to select SHIP, GROUP or COAST STATION. |
| MMSI | Turn and press the selector knob to enter the contact's MMSI number (9 digits), press the soft key **OK** to accept. For coast station contacts you can also enter a DSC channel. |
| Ch (optional) | Press and turn the selector knob to select the preferred channel for this contact, press the soft key **OK**. |
| Position Auto Ack | For SHIP or COAST STATION: Press and turn the selector knob to select YES or NO for this contact, press the soft key **OK**. This will allow auto-ack of position requests for this contact. |
| Listen to Group | For GROUP: Press and turn the selector knob to select YES or NO for this contact, press the soft key **OK.** The radio will respond to calls to the specified group. |

3. Press the soft key **SAVE** to save the contact information.
4. Press the soft key **EXIT** to leave the phone book.

## Editing a contact

1. Press the soft key **PHBOOK**. If it is not in the display, press the soft key **MORE** until **PHBOOK** appears.
2. Press the soft key **EDIT**.
3. Press and turn the selector knob to browse through the details of the contact and continue as described in *Adding a contact to the phone book* from step 2 onwards.

## Deleting a contact

1. Press the soft key **PHBOOK**. If it is not in the display, press the soft key **MORE** until **PHBOOK** appears.
2. Turn the selector knob to browse to the contact you want to delete.
3. Press the soft key **MORE** until **DELETE** appears.
4. Press the soft key **DELETE**.
5. Press **EXIT** to leave the phone book and return to radio operation.

# Radiotelex

With the Radiotelex system you can send and receive telex messages over MF/HF radio. The Radiotelex program runs on a SAILOR 6006 Message Terminal with a keyboard. The SAILOR 6006 is connected to a System 6000 MF/HF radio, which transmits and receives the radio telex messages.

In order to send and receive telex messages press the mode button of the MF/HF radio until **TLX-SHIP** or **TLX-COAST** is shown in the display.

For detailed instructions how to send a radio telex message see the SAILOR 6300 **MF/HF Radiotelex**, User Manual.

# Replay function

With replay you can playback received voice messages in the loudspeaker. Recording is activated automatically when a signal is received. Recording is not possible during playback. Up to 60 tracks or 240 seconds can be handled.

**Note** To record messages only (without the continuous background noise) activate the squelch function. Press the soft key **SQLCH**.

The recorded channel is displayed and the message length is shown in seconds. The display shows also how old the message is. If the 240 s storage limit is reached, the oldest data is overwritten.

**Note** The replay function can be started even in a Distress situation. If a DSC call is received the replay function continues the playback. Immediate acknowledgement of the DSC call initiates and activates the DSC session. You can start replay from any session afterwards.

## Replaying recorded messages

Press the replay button to replay a recorded message. The latest message is repeated. Information about this message is shown in the display. If a signal is received while in replay mode the display shows (RX) in the display.

To stop replaying the message press the soft key **STOP** or the PTT button on the speaking device. To rewind through one recorded message make a long press on the Replay button. To leaf through all recorded messages press the replay button repeatedly at short intervals.

# Setup

The following setup pages are described in this section of the manual:

- *Radio setup*
- *Channel setup*
- *Power Supply*
- *DSC setup*
- *DSC call logs*
- *System setup*
- *Controller setup*

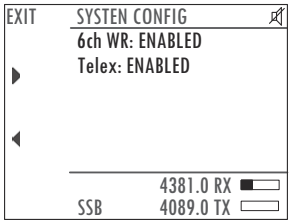
## Accessing a setup page

To change a setting in one of the **SETUP** pages, do as follows

1. Press the soft key **SETUP**. If it is not in the display, press the soft key **MORE** until **SETUP** appears.
2. Press the arrow soft key ▶ or ◀ to advance to the **SETUP** page you want to edit.
3. Turn the selector knob to go to a setting, then press the selector knob to change the setting.
4. Press **EXIT** to return to normal radio operation.

## System config

The system config menu allows the operator to input purchased option keys for telex and HF DSC. Furthermore, status on telex and HF DSC can be validated in this menu (e.g. to be presented for a surveyor).



**Note** Telex option must be enabled in order for the transceiver to communicate with the optional 406006A telex terminal.



## Radio setup

| Item | Description |
|---|---|
| **Scan Hang Time** | Scan hang time, in seconds on an active receiving working channel. The time is measured from the signal is detected. The radio remains on the channel for the set time interval, if a signal was detected.<br>**OFF**: Resumes scanning when signal disappears (default)<br>**4, 6, 8, 10:** Hang time in seconds. |
| **Scan Resume** | Scan resume time, in seconds. When the programmed time of inactivity has elapsed, and when watch/scan has been aborted using a press on PTT, or after power-up, scan or watch is resumed.<br>**OFF**: Automatic resume is deactivated (default)<br>**3, 6, 10, 15, 20, 25, 30:** Resume time in seconds. |
| **Scan Mode** | Scan mode when pressing the soft key **SCAN:**<br>– VOICE (SSB voice) or<br>– MULTI (DSC plus SSB voice, alternating) |
| **External PTT** | ENABLED (For use of an external PTT device, connected to the TU AUX plug) or DISABLED |

## Channel setup

| Item | Description |
|---|---|
| **Watch Receiver** | Press the selector knob to display the watch frequencies and to show which of these are enabled. Contact your local distributor for modifications. |

| Item | Description |
|---|---|
| **Private Channels** | Read only. Contact your local distributor for adding private channels. |
| **DSC Watch** | The frequency watched for dual watch or multi scan. To receive routine DSC calls set this frequency to 2177. |

## Power Supply

| Item | Description |
|---|---|
| **Monitor** | Set this to **ENABLED** if the radio is connected to a SAILOR 6081 Power Supply Unit and Charger.<br>Set this to **DISABLED** for any other power supply. |
| **Status** | Visible if ENABLED. Current status of the connected power supply. |
| **Voltage** | Visible if ENABLED. Current voltage. |
| **Current** | Visible if ENABLED. Current current. |

## DSC setup

| Item | Description |
|---|---|
| **Position & MMSI** | Available position information.<br>Here you can enter position data and UTC time manually.<br>See also *Position and MMSI Information* on page 12 for a step-by-step description. |
| **DSC Groups** | Create, view, and filter DSC groups. |
| **Auto-Ack Test** | Auto-acknowledgement of test DSC messages<br>**OFF** - Disabled<br>**ON** – Enabled (default) |

| Item | Description |
|---|---|
| **Auto-Ack Polling** | ON or OFF |
| **Auto-Ack Position** | ON or OFF |
| **Auto-Ack Individual** | Auto acknowledgement of individually addressed, non Distress DSC messages<br>**OFF** - Disabled (default)<br>**ON** – Enabled |
| **Non-Distr. Inactivity** | Inactivity time-out to exit non-Distress functions (e.g. in setup) without automatic time-out:<br>Range: OFF, 1 to 30 minutes, in 1 min. steps<br>Default: 15 min. |
| **Distress Inactivity** | Inactivity time-out for received Distress DSC automated procedures without automatic time-out:<br>Range: OFF, 1 to 30 minutes, in 1 min. steps<br>Default: OFF |
| **Comm Inactivity** | Inactivity time-out of non DSC communication.<br>Range: 10 to 600 seconds, in 10 s steps<br>Default: 30 s |
| **Non-Distr.Alarms** | Non-Distress DSC alarms<br>**OFF**: Disabled<br>**ON**: Enabled (default) |
| **Self-Term. Distr. Alarms** | Enabled<br>Disabled |
| **Medical transport** | **ON**: This option is available in DSC calls of the type Urgency.<br>**OFF** |
| **Neutral crafts** | **ON**: This option is available in DSC calls of the type Urgency.<br>**OFF** |

| Item | Description |
|---|---|
| **Print DSC** | **ON**: Automatic printing of DSC messages on a selected network printer, accessible via LAN.<br>**OFF** |
| **DSC Self Test** | **OFF**: Disabled (default), no DSC self test.<br>**RUN**: Run a DSC self test.<br>For further details about this test see *DSC routine testing* on page 57. |

## DSC call logs

| DSC call log | Description |
|---|---|
| **Received Distress** | Shows a log of up to 20 received Distress calls. |
| **Transmitted Calls** | Shows a log of up to 20 transmitted calls. |
| **Received Calls** | Shows a log of all received non Distress calls. |

## System setup

| Item | Description |
|---|---|
| **Printer Config** | Select a printer (if one or several printers are part of the system). For further information see *Printing DSC calls* on page 28.<br>Recommended commercially available printer-servers:<br>– Trendnet TE100 P1U<br>– D-Link DPR-1020 |
| **System time & Date** | View and set system time and date. |

| Item | Description |
|---|---|
| **Inactivity timeout** | Inactivity time-out to exit functions (e.g. in setup) and return to the application.<br>• Range: 1 to 30 minutes, in 1 minute steps<br>Default: 10 min. |
| **Language** | English |
| **Theme** | Changes the display colour.<br>**0**: Black text on white background<br>**1**: White text on black background |
| **GPS input** | – TU NMEA (Transceiver Unit)<br>– CU NMEA (SAILOR 6301 Control Unit)<br>– LAN (uses GPS positions broadcasted over attached LAN devices, e.g. SAILOR 6006 Message Terminal for Mini C.) |
| **Diagnostics** | In this menu you can view a log with system status messages and you can start a system test of the SAILOR 6300 MF/HF DSC:<br>– Log<br>– System Test<br>For more details on the Log and System Test see *Diagnostics* on page 52. |
| **Factory Defaults** | Resets the radio to factory defaults after power cycle. |
| **Password** | If you need to change the identity of the radio (MMSI number or disabling the ATU), contact your local dealer. |
| **Radio info** | **SW Version:** Software version of the Transceiver Unit<br>**S/N:** Serial number of the of the Transceiver Unit<br>**TU IP:** IP address of the Transceiver Unit |

## Controller setup

| Item | Description |
|---|---|
| **Handset 1 vol:** | Adjust earpiece volume for handset 1: can be adjusted from 0 to 100, in steps of 5.<br><br>**Note**: Default setting is 80. The handset connected to the front connector has top priority and is configured to 80. The volume can be adjusted from 0 to 100, in steps of 5. |
| **Handset 2 vol:** | Adjust earpiece volume for handset 2: can be adjusted from 0 to 100, in steps of 5.<br><br>**Note**: Default setting is 0. If a handset is connected to the rear connector this value must be configured to a value (0 to 100, in steps of 5). |
| **Wheel lock:** | You can set a time interval after which the RF gain, volume and selector knobs are locked and protected against unintentional use. Then a lock symbol is shown in the display. Press any key to unlock the knobs.<br><br>**OFF**, 10s, 20s, 30s, 40s, 50s, 60s |
| **High priority** | **Yes** – This MF/HF radio (Control Unit) can override the other Control Unit connected to the same Transceiver Unit.<br><br>**No** – This MF/HF radio (Control Unit) cannot override the other Control Unit. |
| **Controller Info** | **SW Version:** Software version of the Control Unit<br>**S/N:** Serial number of the of the Control Unit<br>**IP:** IP address of the of the Control Unit |

# Top-level soft key functions and setup pages

| TOP LEVEL SOFT KEYS | |
|---|---|
| CALL | EXIT<br>PHBOOK |
| ALERT | EXIT<br>POS |
| DROBOS | EXIT<br>PHBOOK |
| HI/LO* | |
| WATCH* | |
| SCAN* | EXIT<br>START<br>STOP<br>TAG<br>FILTER |
| SQLCH* | |
| PHBOOK | EXIT<br>ADD<br>FILTER |
| SETUP | EXIT<br>▶<br>◀ |

* Only in SSB mode.

| SETUP PAGES | |
|---|---|
| RADIO SETUP | Scan Hang Time<br>Scan Resume<br>Scan Mode<br>External PTT |
| CHANNEL SETUP | Watch Receiver<br>Private Channels<br>DSC Watch |
| POWER SUPPLY | Monitor<br>Status**<br>Voltage**<br>Current** |
| DSC SETUP | Positon & MMSI<br>DSC groups<br>Auto-Ack Test<br>Auto-Ack Polling<br>Auto-Ack Position<br>Auto-Ack Individual<br>Non-Distr. Inactivity<br>Distress Inactivity<br>Comm Inactivity<br>Non-Distr. Alarms<br>Self-Term. Distr. Alarms<br>Medical transport<br>Neutral crafts<br>Print DSC<br>DSC Self Test |
| DSC CALL LOGS | Received Distress<br>Transmitted Calls<br>Received Calls |
| SYSTEM SETUP | Printer Config<br>System time & date<br>Inactivity timeout<br>Language<br>Theme<br>GPS Input<br>Diagnostics<br>Factory Defaults<br>Password<br>Radio info |
| CONTROLLER SETUP | Handset 1 vol<br>Handset 2 vol<br>Wheel lock<br>High priority<br>Controller Info |
| SYSTEM CONFIG | 6ch WR<br>Telex |

** If Monitor is set to ENABLED

# *Service & maintenance*

## Overview

In this chapter you find detailed information on:

- *Contact for support*
- *Maintenance*
- *Diagnostics & troubleshooting*
- *Warranty and returning units for repair*



## Contact for support

Contact your authorized dealer for technical service and support of the MF/HF radio. Before contacting your authorized dealer you can go through the troubleshooting guide to solve some of the most common operational problems.

## Maintenance

### Preventive maintenance

Maintenance of the SAILOR 6300 MF/HF DSC can be reduced to a weekly check and a maintenance check at each visit of the service staff. Inspect the radio for mechanical damages, salt deposits, corrosion and any foreign material. Due to its robust construction and ruggedness the radio has a long lifetime. Anyway it must carefully be checked at intervals not longer than 12 months - dependent on the current working conditions.

### *Salt deposits*

In case the equipment has been exposed to sea water there is a risk of salt crystallization on the keys and knobs and they may become inoperable. Clean the MF/HF radio and speaker microphones with fresh water.

## Weekly installation check

Go through the following weekly check procedure:

1. The Antenna Tuning Unit will tune automatically to the antenna first time the equipment is keyed on a new frequency or when the PTT button is pressed. During the tune sequence and normal transmission all transmitter circuits are monitored to ensure safe operating conditions. If transmission conditions are bad (bad antenna installation, high temperatures, etc.) the transmitted power will be reduced to a safe limit. If the transmission condition is improved automatic recovery to full power takes place.
2. If a GPS is connected, check the position and time in the MF/HF radio's display. If time is not contained in the NMEA sentences the time of position is indicated as –:–. In this case check if the GPS output setting can be changed to allow time information. Otherwise UTC time must be entered manually each time the transceiver is switched on.
3. Send a DSC call to the appropriate coast station. The acknowledgement from the coast station is received by the 2187.5 kHz watch receiver if the call was sent on that frequency. If the call is sent on HF only the audio signal output from the 2187.5 kHz watch receiver should be checked.

## Error messages and warnings

Errors and warning messages are shown in the display and are read-only. The messages contain instructions how to proceed.

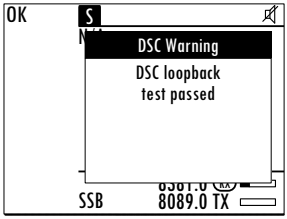
## DSC self test

To run a control routine DSC self test, do as follows:

1. Press the soft key **SETUP**. If it is not in the display, press the soft key **MORE** until **SETUP** appears.
2. Press the arrow soft key ▶ or ◀ to advance to **DSC SETUP**.
3. Turn the selector knob to select **DSC Self Test**. Press and turn the selector knob to select **RUN**.

   The test will check the ability to encode/decode DSC signalling on RF level. The radio will automatically transmit a DSC safety test call to its own MMSI number without enabling the transmitter power amplifier. In parallel the radio decodes and compares the received call to be the same as the transmitted.

   The display shows the result of the test.
4. Press the soft key **OK** to acknowledge the test result and resume normal operation.




**Important**

If the DSC loopback test fails, this indicates the DSC functionality does not work correctly – including the ability to send a Distress message.

Contact your dealer immediately for further advice.

## Temperature specifications

Normal operating temperature: 0°C to +40°C

Extreme operating temperature: -15°C to +55°C

# Diagnostics & troubleshooting

## Diagnostics

You can view logged system status messages that were recorded during the use of the radio and test the radio installation.

In the Diagnostics menu in SYSTEM SETUP the following submenus are available:

- *Log with system status messages*
- *Self Test*

### *Log with system status messages*

In the Log menu you can view the system status, with time, date and a description (besides a technician code). The system status is not an error log. It is a log with issues logged by the radio during normal use.

**Example:** Bad SWR, which may occur in poor installations, hard weather making the transmitter antenna sway, etc.

To view system messages, do as follows:

1. Press the soft key **SETUP**. If it is not in the display, press the soft key **MORE** until **SETUP** appears.
2. Press the arrow soft key ▶ or ◀ to advance to the **System setup** page and select **Diagnostics** and then **Log**.
3. Turn the selector knob to go to a setting, then press the selector knob to view the system setting.
4. Press **EXIT** to return to normal radio operation.

**Note** If the message **ATU: No Comm.** appears in the display during normal use, this might be a temporary condition depending on the current installation. If the problem persists, a pop-up message with an error message appears in the display.

Most of the messages are marked as TU (transceiver unit) or ATU (Antenna Tuning Unit) messages.

| Text in the display | Explanation | Possible cause(s) |
|---|---|---|
| Low Tune Power | Too little power reaches the antenna tuner to tune properly. | Poor antenna installation or bad cable etc. |
| High Tune Power | Too much power reaches the antenna tuner. | An error in the power loop or standing waves may be present |
| TU: Power Low | Too low power compared to expected. | Poor installation or too short antenna, etc. |
| TU: Power High | Too high power output from transceiver unit. | Defective power loop |
| TU: High Low-Power | Low power mode transmits with more power than expected. | Reflections on cable or standing waves, etc. |
| TU: Bias | Too high supply voltage. | Defective DC power supply |
| TU: High Temp | Transmitter overheating. | Poor ventilation. Very hot ambient temperature or prolonged transmission. |
| TU: High SWR | Transmitter sees a high Standing Wave Ratio (SWR). | Poor antenna, cable, fittings or grounding of the installation. Can temporarily occur if ice or water is present on the antenna or during tuning or in rough sea and wind. |
| TU: Low Power | Transmitter reduced power. | Protection due to overheating or prolonged transmission |

| Text in the display | Explanation | Possible cause(s) |
|---|---|---|
| TU: TX Inhib. | Transmission inhibited. | TX_INHIBIT switch is set or a severe protection of the transmitter has set in |
| TU: LO Error | Local Oscillator is not within valid range. | LO PCB is defective |
| ATU: Not Tuned | ATU did not find a proper matching to the antenna resulting in less power out. | Poor antenna connection grounding etc. |
| ATU: No Tune Power | Too little power present at ATU to tune properly. | Too long antenna cable or too much loss in the antenna cable |
| ATU: High U/I | High current or voltage present at ATU causing reduced power output. | Too short antenna and or feed wire or poor matching by ATU |
| ATU: High Temp | High Temperature inside ATU. | Prolonged transmission or bad SWR match |
| ATU: Bad SWR | ATU measures SWR > 8. | Bad antenna installation |
| ATU: High SWR | ATU measures high SWR. | Bad antenna installation or temporarily bad SWR due to weather or sea etc. |
| ATU: No Comm. | ATU does not communicate properly. | Very long antenna cable of wrong dimension, if problem persists. This can also occur temporarily when turning on the radio, until the ATU is ready. |

### *Self Test*

Two different self tests are available:

- Tx single-band transmission test
- Tx multi-band transmission test

The Tx single Band test performs a two-tone transmitter test on the current TX frequency shown in the display.

**Note** This test transmits a short two-tone test signal at full power – the radio operator needs to verify that the channel is free from any traffic before starting the test!

The output of this test is the transmitted power and the battery voltage. Note that the output power is not calibrated, so the power figure may only be used as a guideline. The battery voltage should not drop significantly during this test, as this indicates a poor installation (e.g. thin wires, etc.)

The Tx Multi Band test is similar to the single band test. However, this test automatically transmits on the channel **next to** all six distress SSB frequencies:

- 2182+3 kHz
- 4125+3 kHz
- 6215+3 kHz
- 8291+3 kHz
- 12290+3 kHz
- 16420+3 kHz

**Note** This test transmits a short two-tone test signal at full power – the radio operator needs to verify that the channels are free from any traffic before starting the test!

If you exit the test before it is finished, a system status message will not be added to the diagnostics log.

## Troubleshooting guide

| Action | Symptom | Remedy |
|---|---|---|
| The radio will not turn on | The display is empty. | Check if power is present.<br>Check performance of power supply if connected to one. |
| No communication | The loudspeaker is mute. | Check the antenna installation.<br>Check antenna cable.<br>Check handset/Handmicrophone and cable. |
| GPS | Position requested. | If the MF/HF radio, despite being connected to a GPS/position source, prompts for entering the position and time information, the automated update has most likely been lost either due to missing data on the line, broken cabling or the GPS/position source has failed. Refer to the installation section in the back of this manual for installation and connection details.<br>Until the automatic position update from GPS/position source is restored position and time must be entered manually when prompted by a (four hour) timer in the MF/HF radio.<br>In the **DSC SETUP**, **Position Info**, you can verity the position data. If data is present Lat/Lon/UTC will be displayed. |

| Action | Symptom | Remedy |
|---|---|---|
| DSC routine testing | | Check the DSC function regularly. Verify the complete DSC installation, with antennas, by transmitting a Safety Test call to another station (coast or ship). The test call is generated using the DSC call flow via menu CALL.<br><br>The call should normally be replied by the receiving station without questioning. The default configuration of a DSC MF/HF radio is auto-acknowledgement of any received Safety test call requests. If a ship is equipped with multiple radios a second radio can be the station to check up against. The transmitting radio will not receive its own transmitted calls.<br><br>If there is only a single radio on a vessel, a facility is built into the unit where the DSC engine can be verified using a test call that is internally looped without activating the radio transmitter PA. The test is executed via menu SETUP, DSC SETUP. The call sequence that is verified, is an Individual Safety Test Call directed to own MMSI. The test status is read in the display. |
| Missing MMSI | DSC operation is not working | When powering up the MF/HF radio for the first time after leaving factory there is no MMSI number in the radio. For the DSC operation to function the MMSI number must be entered in the radio. For further details see the installation manual. |

| Action | Symptom | Remedy |
|---|---|---|
| Radio time | DSC logs are sorted with wrong time stamp or radio time is incorrect | A wrong radio time indication should occur only if GPS position source is not connected nor providing correct time data. A valid GPS time signal will update the UTC time used for time stamping the DSC logs.<br>If a GPS/position source is not connected to the MF/HF radio and hence position and time is entered manually, you must enter the "radio time" also manually, at least after power up. This will ensure correct time stamping of the DSC logs.<br>The UTC time is the suggested time to be entered when prompted for entering position and time manually (every four hours). |
| DSC Channel not free | DSC transmission delayed | The transmission of a DSC call which is not of category Distress will be postponed if the MF/HF radio is in the process of decoding an incoming DSC call. As soon as this decoding process has finalized the transmission will take place. |
| Handset configuration | No sound in earpiece | The earpiece volume may be configured to OFF. See section *Controller setup* on page 46 on how to adjust the earpiece volume of the handset. |

| Action | Symptom | Remedy |
|---|---|---|
| Device failure | | If any of the checks and tests described in this section do not assist in resolving the difficulties experienced in the operation and/or performance of the installation, a fault may have developed in the MF/HF radio itself.<br><br>When contacting an authorized Thrane & Thrane representative be sure to provide as much information as possible describing the observed behavior - also including the type of the radio, its serial number, and software release version (both found in the setup menu Controller Setup). |
| Cannot transmit, **TX inhibit** is displayed | External switch on the Transceiver Unit temporarily disables the radio. | If a popup window with the information **TX inhibit** is displayed when you want to make a radio call, your MF/HF radio is temporarily blocked for sending. Consult your radio responsible for information when you can start transmitting. |

# Warranty and returning units for repair

Should your Thrane & Thrane product fail, please contact your dealer or installer, or the nearest Thrane & Thrane partner. You will find the partner details on thrane.com where you also find the Thrane & Thrane Self Service Center web-portal, which may help you solving the problem.

Your dealer, installer or Thrane & Thrane partner will assist you whether the need is user training, technical support, arranging on-site repair or sending the product for repair.

Your dealer, installer or Thrane & Thrane partner will also take care of any warranty issue.

## Repacking for shipment

Should you need to send the product for repair, please read the below information before packing the product.

The shipping carton has been carefully designed to protect the SAILOR 6300 MF/HF DSC and its accessories during shipment. This carton and its associated packing material should be used when repacking for shipment. Attach a tag indicating the type of service required, return address, part number and full serial number. Mark the carton FRAGILE to ensure careful handling.

**Note** | Correct shipment is the customer's own responsibility.

If the original shipping carton is not available, the following general instructions should be used for repacking with commercially available material.

1. Wrap the defective unit in heavy paper or plastic. Attach a tag indicating the type of service required, return address, part number and full serial number.
2. Use a strong shipping container, e.g. a double walled carton.
3. Protect the front- and rear panel with cardboard and insert a layer of shock-absorbing material between all surfaces of the equipment and the sides of the container.

4. Seal the shipping container securely.
5. Mark the shipping container FRAGILE to ensure careful handling.

Failure to do so may invalidate the warranty.

## A

| | |
|---|---|
| AM | Amplitude Modulation |
| ATU | Antenna Tuning Unit |

## D

| | |
|---|---|
| DROBOS | Distress Relay On Behalf Of Someone else |

## F

| | |
|---|---|
| FEC | Forward Error Correction. A system of error control for data transmission, whereby the sender adds redundant data to its messages, also known as an error-correcting code. This allows the receiver to detect and correct errors without the need to ask the sender for additional data. The advantages of forward error correction are that a back-channel is not required and retransmission of data can often be avoided. |

## G

| | |
|---|---|
| GMDSS | Global Maritime Distress and Safety System |
| GPL | General Public License |
| GPS | Global Positioning System |

## H

| | |
|---|---|
| HF | High Frequency |

## L

| | |
|---|---|
| LGPL | Lesser General Public License |

## M

| | |
|---|---|
| MF | Medium Frequency |
| MMSI | Maritime Mobile Ship Identification |

## P

| | |
|---|---|
| PTT | Push To Talk |

## R

| | |
|---|---|
| RX | Receive |

## S

| | |
|---|---|
| SSB | Single Side Band |
| SWR | Standing Wave Ratio |

## T

| | |
|---|---|
| TFT | Thin Film Transistor. type of liquid crystal display. |
| TU | Transceiver Unit |
| TX | Transmit |

## U

| | |
|---|---|
| UTC | Coordinated Universal Time. The International Atomic Time (TAI) with leap seconds added at irregular intervals to compensate for the Earth's slowing rotation. Leap seconds are used to allow UTC to closely track UT1, which is mean solar time at the Royal Observatory, Greenwich. |

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